

## Office Memorandum • UNITED STATES GOVERNMENT

TO : Lyall E. Johnson, Chief  
Licensing Branch

DATE: NOV 19 1958

FROM : Clifford K. Beck, Chief  
Hazards Evaluation Branch

SUBJECT: ENGELHARD INDUSTRIES, INC. REQUEST FOR AMENDMENT OF SMM-98

We have reviewed the request for Engelhard Industries dated September 12 and the information submitted with this request. Engelhard proposes a bird cage shipping container having as a fuel volume a 6-inch dimension sealed pipe having a capacity of 7.85 liters.

It is proposed that nitrate solutions of enriched uranium having H/U ratios greater than 20 be shipped in this container up to volumes of 7 liters. There is no problem of inadvertent criticality for such solutions in these quantities and dimensions.

It is also proposed that this container be used for dry materials, oxides, fluorides, etc., with densities up to 5 grams per ml, in quantities up to 15 kg for fully enriched material, and in proportionally larger quantities for lower enrichments. We find that these quantities of materials as described are also safe from potential criticality.

However, it should be noted that the capacity of these containers for materials of this type is a great deal larger than the specified amounts, and that the actual loading of the containers to quantities specified must depend on administrative and supervisory control. Furthermore, the dimensions of this container are sufficiently large and the quantities of material which could be shipped therein of such size that definite hazards of criticality could ensue if low hydrogen content or other moderating material were permitted to be present. Thus, supervisory and administrative controls must also be exercised to assure that solid materials of the quantities indicated are in fact dry and free from other moderating impurities. Finally, similar controls must be exercised to insure that materials of higher densities are not inadvertently included.

It is our opinion that the container may be used for shipments within the limitations specified, but we recommend that the Commission be supplied with a description of the supervisory and administrative controls to be exercised to insure that the limitations are observed.

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H/L  
sent.

*Do not mention this*

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